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%Simulates the MCMC for Female and male mouse liver as single level sex  
specific analysis
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```
prepare @clear  
prepare @all
```

```
VVIALF=0.01165; %% Male ==VVIAL=.0119573;  
VVIALM=0.0119573;  
VMED=.001;  
VINJF=0.0002; %% Male ==VIN=0.0003858 !important  
VINM=0.0003858 ;  
VAIRF=VVIALF-VMED;  
VAIRM=VVIALM-VMED;  
TSTOP=1.2;  
TF=0.;  
TI=0.2;  
PROT = 1.0;  
P1 = 0.69;  
WESITG=0;  
WEDITG =0;  
  
CINT = 0.1 ;  
MAXT = 0.001 ;  
TSTOP = 1.1  
  
KG1 = 0.45 ;
```

```
global c  
if c==1  
seedrnd(45526)  
elseif c==2  
seedrnd(334485)  
else  
seedrnd(998754)  
end
```

```
global _ca1  
global _time  
global data  
global tFindex  
global tMindex  
  
global CCC  
global firstT  
global lastT  
global firstD  
global lastD
```

```

global ControlData

use ('ControlData.m')
use ('FemaleData.m')
use ('MaleData.m')

dataF = [B6FmiceLiver(:, IDf_540ppm : IDf_10ppm)];
dataM = [B6MmiceLiver(:, IDm_529ppm : IDm_10ppm)];
data = NaN* ones([25, 10]); % correspone to max 25 timepoints and 5 dose
each gender
data(1:6, 1:5) = dataF ;
data(1:25, 6:10) = dataM;
firstT = [1, 1]
lastT = [6, 25]
firstD = [1, 6]
lastD = [5, 10]
tFindex = B6FmiceLiver(:, IDf_time);
tMindex = B6MmiceLiver(:, IDm_time);

AA=dataF(1,:)*(VAIRF+P1*VMED);
BB=dataM(1,:)*(VAIRM+P1*VMED);
CCC = [AA, BB];
data = log(data);

function preds = getpreds (Vmax, Km, VK, A10, Gender)
    global _ca1
    global _time
    global tFindex
    global tMindex
    global ControlData

    % draw back ground loss rate
    tmp = ceil(rand*500);
    lossR = ControlData(tmp);

    setmdl("VMAX1", exp(Vmax)); % reset model parameter as global
variables
    setmdl("KM1", exp(Km));
    setmdl("VK", VK);
    setmdl("A10", A10);
    setmdl("RLOSS", exp(lossR));

    if Gender==1
        tindex = tFindex;
        setmdl ("VVIAL", 0.01165);
        setmdl ("VINJ", 0.0002);
    else
        tindex = tMindex;
        setmdl ("VVIAL", 0.0119573);
    end
end

```

```

        setmdl ("VINJ", 0.0003858);
end

data @clear
data("SAMPTIMES", ["T"], tindex);

start @nocallback

preds = NaN*ones(length(tindex), 1);

for i = 1:length(tindex)
  idx = find(_time == tindex(i));
  if(idx ~= [])
    preds(i) = max(0.0, _cal(idx));
  end
end

preds = log(preds);

use ".\MCMCscripts\invitroflivmcrd.m"
chains = runmcmc();

save @file=fmouseliverredol.dat @format=ascii @separator=tab chains

```